

AMENDMENTS TO THE CLAIMS

1-74. (Cancelled)

75. (Previously Presented) A chemical vapor deposition method of depositing a ~~single layer comprising a first metal, aluminum, nitrogen and boron on over~~ semiconductor wafer, comprising ~~the steps of~~:

placing said semiconductor wafer in a chemical vapor deposition chamber;

heating said wafer;

introducing a selected metal precursor, a selected aluminum precursor, a selected nitrogen precursor and a selected boron precursor into said chamber to substantially simultaneously deposit said first metal, aluminum, nitrogen and boron ~~on over~~ said semiconductor wafer as a layer comprising $M_xAl_yN_zB_w$, wherein M is said first metal, x, y and z are each greater than zero, and w is between about 0.35 and about 1.4.

76. (Previously Presented) The method of claim 75, wherein said metal precursor is titanium and a single gas serves as said metal precursor and said nitrogen precursor.

77. (Previously Presented) The method of claim 76, wherein said metal and nitrogen precursor is $Ti(N(CH_3)_2)_4$.

78. (Original) The method of claim 75, wherein said wafer is heated to a temperature of approximately 250-550°C.

79. (Previously Presented) The method of claim 76, wherein said metal and nitrogen precursor is of the formula $Ti(NR_2)_4$, where R is selected from the group consisting of one or more of hydrogen, an alkyl group and an aryl group.

80. (Original) The method of claim 75, wherein said aluminum precursor is selected from the group consisting of DMEAA, dimethylaluminumhydride ethyldimethylamine adduct, dimethyl aluminum hydride, an alkyl aluminum compound, an alkylaminealuminum compound, and any adducted complexes of the above-named aluminum-containing compounds.

81. (Previously Presented) The method of claim 75, wherein said selected metal precursor is selected from the group consisting of tetrakisdiethylamidotitanium, bis(2,4dimethyl)(1,3-pentadienyl)titanium, titanium tetrachloride, titanium tetrabromide, titanium tetraiodide, and cyclopentadienylcycloheptatrienyltitanium.

82. (Original) The method of claim 75 wherein said metal precursor is selected from the group consisting of metal halide compounds and organometallic compounds.

83. (Original) The method of claim 75 wherein said boron precursor is a boron reactant gas.

84. (Original) The method of claim 75 wherein said nitrogen precursor is a nitrogen reactant gas.

85. (Original) The method of claim 75, wherein at least one of said precursors is introduced into said chamber in gaseous form.

86. (Original) The method of claim 75, wherein at least one of said precursors is introduced into said chamber through a bubbler.

87. (Original) The method of claim 75, wherein at least one of said precursors is introduced into said chamber through direct liquid injection.

88. (Currently Amended) A method of depositing an amorphous alloy comprising a first metal, aluminum, nitrogen and boron on an object, comprising the steps of:

placing said object within a chemical vapor deposition chamber; and

injecting gaseous precursors of said first metal, aluminum, nitrogen and boron into said chamber, wherein each of said gaseous precursors is transferred from a respective bubbler, each said respective bubbler and said chamber being at about a same pressure.

89. (Currently Amended) A method of depositing a generally conformal layer comprising a first metal, aluminum, nitrogen and boron on a semiconductor wafer, comprising the steps of:

providing a chemical vapor deposition reactor;

placing said wafer within said reactor;

heating said wafer to a selected processing temperature of from about 250 to about 550°C;

establishing a pressure of 100 millitorr to 10 torr within said reactor; and
injecting a selected quantity of a gaseous organometallic precursor from a first bubbler into said reactor;

injecting a selected quantity of an aluminum precursor from a second bubbler into said reactor, said first bubbler and said second bubbler being at a pressure substantially the same as that within said reactor; and

depositing said first metal, aluminum, nitrogen, and boron as a layer comprising $M_xAl_yN_zB_w$, wherein M is said first metal, x, y and z are each greater than zero, and w is between about 0.35 and about 1.4.

90. (Original) The method of claim 89, wherein said aluminum precursor is selected from the group consisting of DMEAA, dimethylaluminumhydride ethyldiinethylamine adduct, dimethyl aluminum hydride, an alkyl aluminum compound, an alkylaminealuminum compound, and adducted complexes of any of the above-named aluminum-containing compounds.

91. (Previously Presented) The method of claim 89, wherein said first metal is titanium and is deposited from a titanium precursor selected from the group consisting of tetrakisdiethylamidotitanium, bis(2,4dimethyl)(1,3-pentadienyl)titanium, titanium tetrachloride, titanium tetrabromide, titanium tetraiodide, cyclopentadienylcycloheptatrienyltitanium, and a precursor of the formula $Ti(NR_2)_x$, where R is selected from the group consisting of one or more of hydrogen, an alkyl group and an aryl group.